

[REDACTED]

From: Peter Harris [REDACTED]
Sent: Friday, 25 August 2017 2:11 PM
To: Retail Electricity Inquiry
Subject: TRIM: Urgent: For the security and cost of electricity supply

[REDACTED]

To the ACCC Electricity Supply and Prices Inquiry

I am writing to raise the question of energy security and to share with the Inquiry my disturbing correspondence with AEMO.

The correspondence shows that AEMO does not have the expertise nor the jurisdiction to warrant "Energy Security for all Australians" and I believe that this advertising should be discontinued forthwith.

Importantly the correspondence indicates a lack of **any single accountable authority** with the technology to plan and execute the transition currently being undertaken in Electricity supply and distribution. Consequently the work is proceeding ad hoc and the cost and security of electrical energy is severely threatened which is a matter of concern for the national economy and security.

When there is no wind the South Australian decision to purchase the world's largest battery storage costing \$150 million assuming 100% efficiency would supply full load of 200MW for approximately 40 minutes. The massive energy density is similar in principle to that of a very large bomb and there have been instances of spontaneous combustion from these LI batteries. The proposed Solar Thermal plant costing \$650 million is relatively new technology based on a US plant that has suffered 30% downtime.

The technical questions in the following correspondence were raised by a competent engineer who was employed by Snowy Mountains Electricity Commission (SMEC) before it was privatised and his role using the technical software was the design and successful implementation of the national grids in developing countries including Uzbekistan and Thailand.

There is an urgent need to reestablish this capability as a single accountable national body with the authority to oversee the design and implementation of the Australian electricity supply. From the Political point of view such an authority would fit with the current engineering project to expand the Snowy Hydro (SH) storage capability and the technical capability might be found in SH or in SMEC.

I request the ACCC inquiry to take serious and urgent consideration for national energy cost and security.

Correspondence follows:

Regards

Peter Harris

Retired engineer.

In Response to [REDACTED]

Dear [REDACTED]

Thanks for your response but it raises many questions that go direct to the security of electrical energy supply for "All Australians". It is a fundamental requirement in management to appoint a single identifiable authority equipped with the necessary expertise and resources to undertake the task and then to hold that authority accountable for the outcome.

The installation of the worlds largest energy storage battery in SA will represent a major component of the system and energy security for the state but from your response I understand AEMO has no control over the decision or its application and use.

The bank of batteries contain very large levels of energy in a confined space. That is similar in principle to a very large bomb and security of this storage may be threatened by fluctuations in load. The failure of a single cell may lead to a chain reaction. Your response suggests that AEMO has no responsibility for the security of this device or the impact on energy supply. Your response also does not address the technical design and the structure of the overall system to maintain security of the national and state electricity grid.

For example the progressive introduction of unstable renewable source energy and closure of market-disadvantaged generation by stable coal/gas fueled stations requires careful accountable engineering design and national oversight :

As AEMO is the accountable authority for Australian energy security do you have the following essential technical design and management controls in place?:

Regarding design security accountability: Organisation charts showing lines of responsibility for the total interconnected system and within each State (AEMO, FRACS etc.)

- . Who is responsible for the following? Where are they located? What software do they use?
- . Loadflow including probabilistic.
- . Protection coordination
- . Transient stability
- . Steady-state stability
- . Load rejection and generation rejection
- . Three-phase, two-phase and single-phase fault level
- . Harmonic analysis . What standard is used?
- . Standards used eg IEEE1572?
- . Load Forecasting (eg is the Small- area method used?)

. Does AEMO maintain a computer model which can aid in estimating the economic impact of various penetrations of solar and wind power with and without battery backup on electricity tariffs eg the MARKAL model?

Does AEMO use a probabilistic simulation model such as WASP 4 for long term generation expansion planning? Is the long run marginal cost of supply (LRMC) in \$/MWh consequently calculated and the least cost generation expansion plan determined?.

██████████ your response below suggests that AEMO has no control and does not accept the responsibility for the security of energy supply through the highly sensitive transition in power generation and distribution. This explains how South Australia has lost control and such a process threatens further instability with no accountable authority.

"Classically in the 'open access' framework used for network connection, it is independent private sector development entities that design and propose configuration for generation projects (i.e. wind, solar, gas, batteries or a combination thereof), based on a level of generator performance suitable for that part of the network".

In reply to my question 5 below your response suggests that AEMO has divested to the Finkel report the responsibility for the decision whether to integrate batteries with renewable installations.

"There are currently no advanced policy plans that would require batteries to be co-located with wind and solar plants. This item was considered in the Finkel Review without explicit recommendations being made".

If AEMO itself is not capable and responsible for design and forward planning please advise what is the organisation accountable for energy security for Australia.

Regards
Peter Harris

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